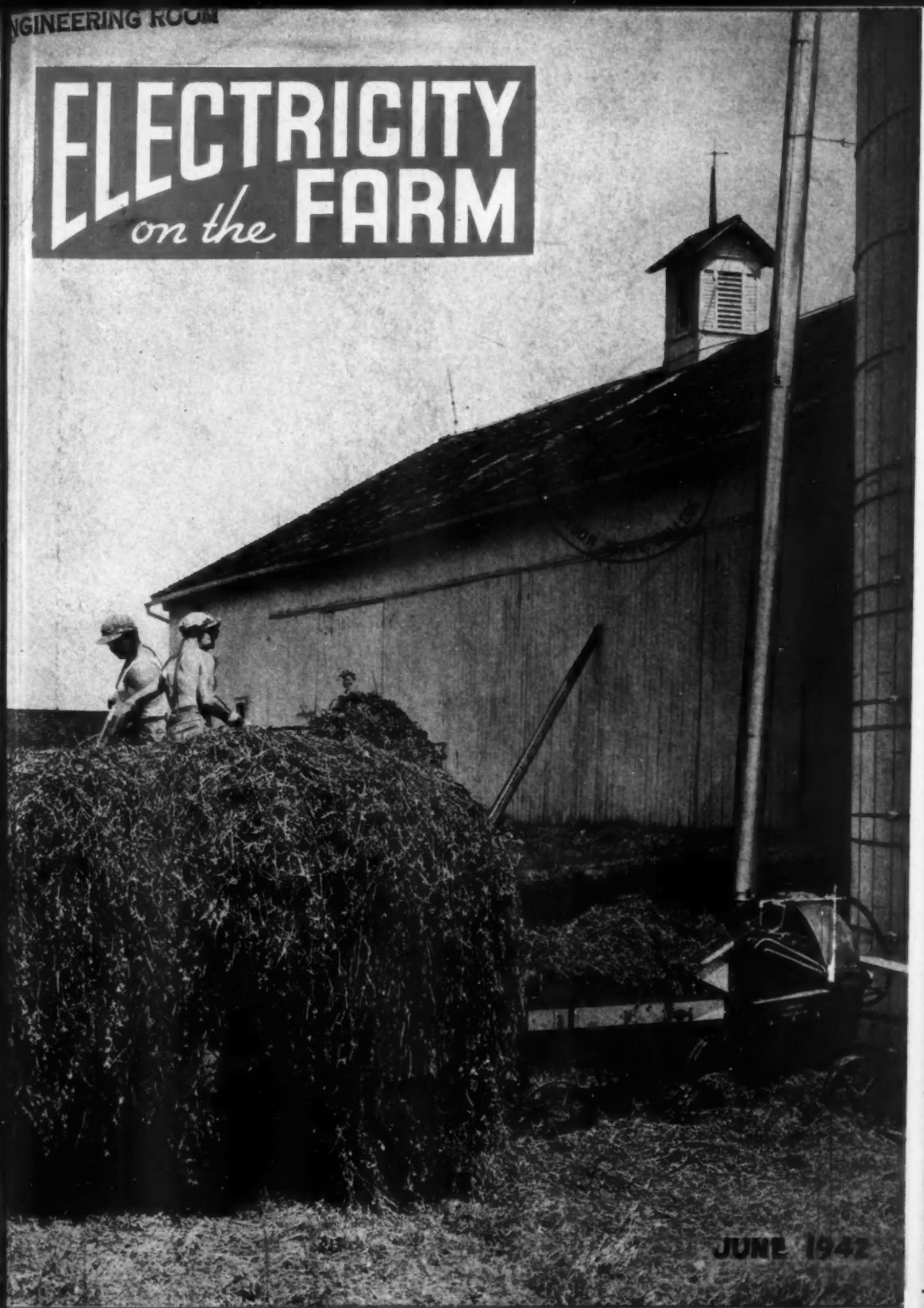
NGINEERING ROOM

ELECTRICITY *on the* FARM



JUNE 1942

THE NATIONAL MAGAZINE OF RURAL ELECTRIFICATION

ANOTHER FIGHTING MACHINE IS GOING BACK TO THE FRONT

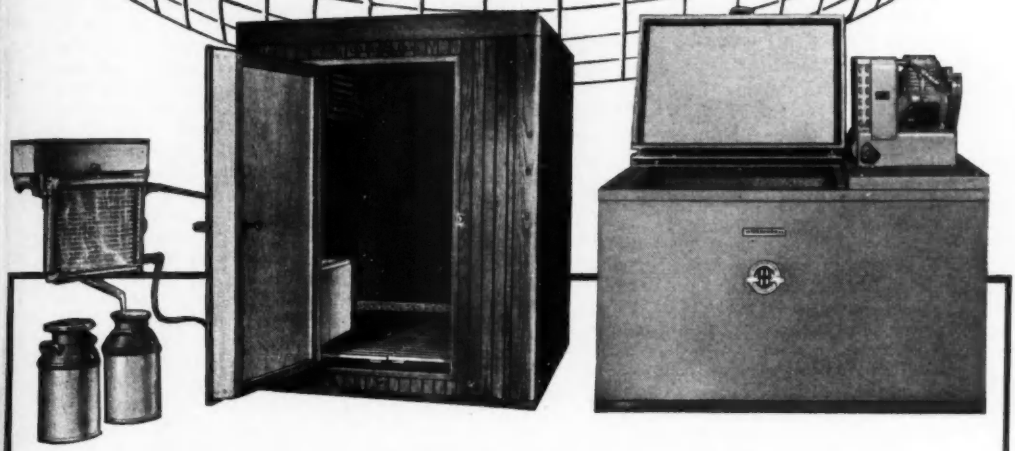
THIS is a hard-hitting "fighter" that takes the worst kind of a beating and comes back for more. Right now, it needs help, but soon, thanks to modern electric welding, it will be back in the field, working harder than ever to answer the nation's call for more food for victory.

Farm tools are war tools—producing for victory. They must be kept in working condition. With spare parts so hard to get, G-E electric arc welders are being used more and more each day to repair broken parts and to re-surface hard-faced parts of farm equipment, such as harrows and plow-shares. Ask your implement dealer or welding shop about the advantages of electric arc welding for fast, economical repair of your farm equipment. General Electric Company, Schenectady, N. Y.

GENERAL ELECTRIC

203-6-185

Save Tires with REFRIGERATION



TODAY it is the patriotic duty of every man to *save* wherever possible. And mechanical refrigeration of milk and cream is doing a real job to help save a number-one scarcity . . . rubber tires!

In localities where less frequent delivery of milk is practiced, dairymen with modern refrigerator equipment are able to keep their product sweet, clean, and cool for longer periods of time than would otherwise be possible. When the daily marketing of milk is not required, truck tires will last longer and *refrigeration* will keep on backing up the war conservation program.

For years International Harvester Refrigeration has been called on to help solve the problems of safe milk storage. The great flexibility of this line . . . its exclusive features, including *pneumatic water agitation,* and *built-up ice-bank,* fit the International Cooler particularly well for the job of handling the new, more vital problems in wartime.

See the nearby International Harvester dealer if you need help with any cooling operation. He will be glad to show you how modern refrigeration can bring the extra efficiency you need.

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago, Illinois

International Harvester

Editor's Chat

Good Milk

Recently I have been very pleasantly reminded of Prof. Wylie's article printed in the May issue of ELECTRICITY ON THE FARM on "Why Cool Milk?" Mrs. Kable was away for a week and I was in the house alone. When she left there were two 2-quart bottles of milk in the electric refrigerator. I ate an occasional meal at home, and drank milk. It remained sweet and good to the last. That was on a Friday. I looked at the cap on the bottle. Printed on it was "Pasteurized during the 24 hour period ending 6 a.m., MONDAY." That milk had been in our refrigerator for 12 days. Good milk! Good refrigeration!

It Is Being Done

Americans cherish democracy. We live by and for the freedoms and opportunities which a democracy affords. These same freedoms and opportunities have drawn many Europeans to America as a land of shining promise.

A year ago there was some question in the minds of many whether a democracy could function as fast and effectively as a dictatorship in time of war. Does anyone still question? From a state of peace and unpreparedness, this nation has undergone a change, so rapid and so complete that it is scarcely conceivable, even to those who have actively participated in it. The automobile industry, for instance, has practically ceased to exist for the duration. The plants have been dismantled and retooled for war. New plants—thousands of them, some so fabulous in size as to challenge the imagination—have sprung into being all over the country. Men who made cars, or lighting fixtures, or lawnmowers, or fishing rods are now building planes, and tanks and shells and ships. The garage mechanic is a gun maker. The vocational shop student is a ship welder. The line builder is in the Signal Corps. WPB has set August 1st as a deadline beyond which there will be a practical stoppage of the use of metals for civilian purposes. We cooperate.

A few months back there was much concern over increasing the National debt above $50,000,000,000. We have now spent more to date on this War of Survival than we did on the World War. And when we read of increasing the National debt to $200,000,000,000 we gasp, but grin.

The men who have been forced out of business have complained very little. We've gritted our teeth and paid the first installment of war taxes. We've settled our affairs and joined the army and navy. And we clench our fists and say, "We'll lick 'em!" With it all, we still have most of our freedoms; we are welcoming the opportunity to save our way of life. And even now, we are planning our opportunities "after the war."

Can Democracy function fast and effectively in war? It is being done.

Farm Efficiency

A movement is under way in industry in this country which should be of interest to farmers. It is the WPB program for Training Within Industry. The purpose of the program is to get more efficient production from war plants.

Industry in the United States has been efficient. The output per man is far greater than in any other country in the world. Our men have been trained to use power machinery in production. But the training within industry—the teaching of men to do their jobs better has been stepping up production still further. Plant owners and operators and workers are pleased with results.

At a meeting of The Southern Agricultural Workers Association last winter, an agricultural engineer made the statement that it would be be better if half the men using one-mule plows went fishing while the other half used all the mules on two mule plows, since the work would be done just as fast and also done better. This is one way of saying that there are a lot of farmers in this country who work very inefficiently. It applies to other sections of the country as well as the South. Farmers are not entirely to blame for this situation, for there has been enough farm manpower so that labor efficiency was not essential.

Production under war conditions is a different matter. With a shortage of labor the question arises whether we might benefit by some intensive efficiency activities within the farming industry. This might include job training in the use of *more* power equipment, or just training to use what one has *more efficiently*. We have never really faced this problem seriously before. War plants will need many more men than are now at work. Perhaps some farmers who are operating at low efficiency might do better working in war plants for the duration, drafting those who are better equipped to farm the additional acres. Also, should a shortage of new farm machines call for rationing, it must be decided whether the new machines are to go to poorly equipped farmers or as replacements and additions to those who have been operating on a low man-hour production basis.

George Kable

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Hotpoint Electric Ranges Save Valuable Time in Farm Homes

OUT of this great war with its consequent demand on human time dawns a realization of the great savings Hotpoint Electric Ranges effect in the farm home.

For example, Hotpoint's automatic operation saves from one to three hours a day of the time you spend cooking and cleaning when you use an old-fashioned kitchen stove.

With Hotpoint's electric timer clock you place an entire meal in the oven, set the clock to start cooking and stop cooking at given times, then go about other tasks indoors or outdoors. The meal will be cooked perfectly without any watching on your part.

Other time-saving features: No fuel to carry or store—you start cooking at the turn of a switch; cleaning time is minimized because electric cooking creates no combustion dirt; the stove is as easy to clean as a china plate.

If you now own a Hotpoint Electric Range, congratulations! It will save you many hours in these busy days. If you do not own a Hotpoint make a note to get one as soon as electric ranges are again available. Edison General Electric Appliance Co., Inc., 5610 W. Taylor St., Chicago, Illinois.

Hotpoint

ELECTRIC KITCHEN APPLIANCES

ELECTRIC RANGES, REFRIGERATORS, WATER HEATERS, WASHERS, IRONERS, DISHWASHERS, DISPOSALLS, ELECTRA-SINKS, STEEL KITCHEN CABINETS.

Streamlining the Dairy for War

By **R. E. JOHNSON**, Rural Service Manager
Toledo Edison Company

IN March 1941, when the Wood County Dairy Tour stopped at the Alvin Ziss farm near Haskins, Ohio, they saw an electrically streamlined dairy. Subsequently it has proved to be streamlined for war production. Furthermore, electricity is treated like any cow on the place—it pays its keep—or else.

Alvin Ziss

Mr. and Mrs. Ziss made a business study of their farming operations by recording the amount of feed ground, mixed and elevated, the pounds of milk produced and cooled, the number of meals cooked, the hours that the electric washer and the iron were used, and other records of the amount of work actually performed by electricity—their invisible extra hired hand. At the beginning of the year fifteen electric meters had been set to register the amount of current required for various operations. In addition, two water meters were installed to measure hot and cold water used.

Mr. and Mrs. Ziss have used some electricity for years. They did not really apply it to many farm jobs, until after they attended a course in rural electrification conducted by the Farm Service Department of the power company in conjunction with the Vo-Ag Department of the Pemberville high school. Here they learned of the economy and the labor saving advantages that were possible in operating their 120 acre dairy farm. Their farm is now one that could well be used as a model for 1942.

Due to his scheme of modernization featuring a big pasture, purebred cows and the utilization of electricity for power, work and heat, Mr. Ziss is meeting the production goals set for 1942, even though the drive has just started. His herd of 30 Holsteins, 20 in the milking line, are producing better than 95 gallons of milk daily, a third more than in 1941 and with no increase in labor.

Mr. Ziss has recently changed over to the feeding of chopped hay. He cuts his alfalfa as before and lets it cure in the sun. Then with pick-up cutter, truck and blower he harvests it with real speed. Last summer his crew of six workers put up twenty acres in one afternoon, three times as fast as they could do using the old system. He remarked "I get twice the volume of hay in the mows. The hay is top quality and the result is more and better milk."

1941 Electrical Record of the Ziss 120 Acre Dairy Farm

Appliance	Quantity	Kw hr per year	Annual cost
Deep well pump—¼ hp motor	338,604 Gal	427	$ 10.45
Cistern pump—1/6 hp motor	11,374 Gal	14	.38
Milking machine—¾ hp motor	206,948 Lb	249	6.09
Milk cooler—6 can (new) (Used in December only)	192 Cans	1 mo.	1.71
Grain elevator—1½ hp motor (Also mixer)	61,425 Lbs	146	3.59
Feed grinder—5 hp motor (Buhr Type)	60,685 Lbs	442	10.82
Water heater—250 watt element (Dairy)	1,856 Gal	1033	25.31
Range (Water for household use also heated on range)	1,181 Meals	1644	40.13
Washer—¼ hp motor	77 Hrs	20	.49
Iron	132 Hrs	78	1.93
Refrigerator—8 Cu. ft. (new)	2½ Mos	92	2.15
Lighting & miscellaneous	...	1132	27.64
Tenant house	...	847	20.49
Main meter—Total	...	6221	151.80
Average cost per kw-hr	...	....	2.44¢

New equipment purchased during the test year included a dairy water heater in January, an eight cubic foot electric household refrigerator in October and a six-can milk cooler

Left: The power company agricultural engineer, Charles Seever, shows Mr. Ziss a successful type of stock tank heater. **Right:** Don Ziss is a student in the Haskins High School but he helps with the milking at home.

which was installed in December.

Mr. Ziss' record shows that over a ninety-three day period from January 19th to April 22nd, the milk cooler required 376 kw-hrs to cool 744 ten gallon cans of milk; which amounts to only slightly more than ½ kw-hr per can during this period. He would not give up the convenience of using the cooler in winter merely to save eight cents per day. "In the winter I might possibly save a small amount by cooling with water if I wanted to go to the extra trouble to lug those cans over to the old cooling trough, but the cooler is much more convenient to use and I believe it makes for better quality milk. If we farmers produce better quality, more palatable milk, consumers will use more."

"Until you placed that meter on the milker, I never realized that the cost of electricity for milking was so little. Anyone with a knowledge of the facts would certainly want a milker. It milks more uniformly and unquestionably gets more milk from a cow than the average hand milker would draw. An extra worker would also be required in addition to the present hired man and family labor if it were not for the milker.

"I would not part with my feed grinding and mixing set-up for twice the amount it cost me. The cost of grinding is less than by any other method; moreover, by grinding in 500 pound batches, the feed is fresher and more palatable."

The Economics of the 4-Can Milk Cooler

By **JOSEPH H. BODWELL**
Public Service Co. of New Hampshire

A FEW years ago it was apparent to nearly every dairyman in New Hampshire that some improvement in his method of milk cooling was necessary; but these questions arose: "How shall I cool my milk, with electricity or with ice?" "What type of outfit shall I buy?" "How much money can I afford to pay?"

We first tried to find out what the dairyman wanted, and here's what we found:

1. The majority of dairymen produced 130 quarts daily or less.
2. Some producers use 40-quart cans and some 20-quart cans; some use both sizes.
3. The time allowed for the actual cooling was
   A. To satisfy the legal requirements in our State and in most states, milk must be cooled in 1½ hours from the time of milking.
   B. The great majority of milk collections are made once a day in about two hours or more after morning milking.
   C. In a few cases, milk must be cooled in between 1 and 1½ hours after milking.
   D. A few small producers are retailers and require immediate cooling for bottling.
4. We found that electricity was cheaper than ice even when the dairyman cut his own ice.

Size of Cabinet and Refrigeration Unit. If you produce 130 quarts a day, naturally you will need a cabinet which will hold four 40-quart cans. If you produce half that amount, a two-can size of cabinet would satisfy your requirements. However, when we checked into this we found two things: First, that a two-can or three-can cooler runs up very closely in cost to that of a four-can cooler because of the small number manufactured. The difference in cost to the dairyman would be so small that the four can size would be more readily salable and it is more adaptable in expansion of the dairyman's business. We also found that the size of condensing unit used on the four-can cooler was about as small as was made in any quantity by the manufacturers, and that this same size was usually installed in a two-can or three-can cooler as well as in a four-can cooler. Altogether, it seemed to us that, even for the smaller producer, the four-can size of cooler was the best investment.

Another problem is that of the dairyman who produces a great deal more milk in the summer time, principally because of catering to summer tourists. Some of these men need an eight-can cooler in the summer time, but a four-can cooler would be ample for the rest of the year. Two four-can coolers make a wonderful solution for this problem. The two are run in the summer time; in the winter time, one cooler is shut off altogether. The cost of these two four-can jobs is a very little more than an eight-can job, and shutting off the cooler when not needed gives a desirable economy.

We found that the ¼ hp unit is ample for the four-can cooler in New England. In checks on actual installations with watt-hour meters we found that twenty kw-hrs per month, per each forty-quart can, in the warmest months, can be used in practically every case in figuring cost of operation.

Sizes of Cans. The problem of twenty-quart and forty-quart cans may be solved by securing a metal rack made in two parts. When using twenty-quart cans the high rack is used; when forty-quart cans are cooled the rack is separated, using only the bottom section.

Cooling Time. There are two general types of "wet" coolers available: the "still-water" type and the "agitator" type. The "still-water" type is the simpler, but requires about one-third more cooling time, though still within the legal requirements of our state. The "agitator" type is faster, but has added mechanical complications and costs more. Therefore, it seemed sensible for the dairyman to use the simpler type of cooler and we find that this

. . . . . More on page 11

A Typical four-can cooler, one of the first ones purchased by New Hampshire farmers in carload lots at $200. It is shipped ready to plug-in for use.

Part of the irrigated bean patch on the W. P. Buchanan farm showing the rotating sprinklers.

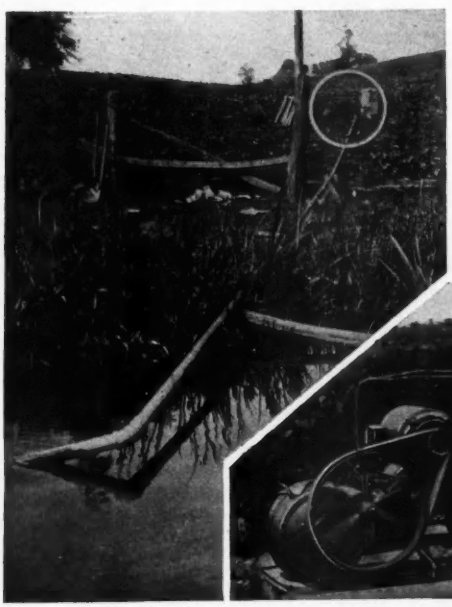
Irrigation Increases Yields

Some Records from Farms in Virginia, Ohio, Tennessee and Georgia on Irrigated Strawberries, Truck Crops, Potatoes and Pastures Covering the Period from 1933 to 1941

THIS article is largely a record of some farm irrigation experiences in Virginia and Ohio during the past three years. It is significant this year particularly when our best efforts are being directed to increasing production, and when a shortage of tires and time may make even a good house garden a matter of considerable importance. While these experiences deal with commercial production, the water will do equally well on the farm garden.

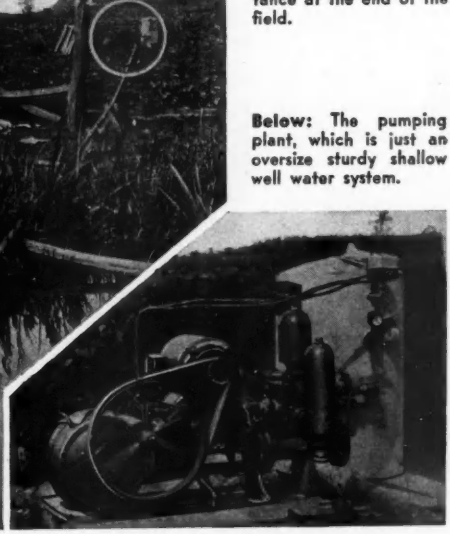
Irrigation is more than a stimulant for a crop, faint from lack of rainfall. It is something to give that crop a good start, strengthen its constitution and sweeten its disposition from seed to harvest. *Properly timed and applied,* irrigation water increases yields and improves quality. Because it does, equipment for irrigation is still available. For the garden it may take only a hose and rotating sprinkler heads.

Two rules which it is important to observe in the irrigation of most crops are: 1) apply the water before the crop starts to suffer for water; and 2) when you irrigate, put on plenty of water to penetrate deeply into the soil. It is much easier to keep plants growing than it is to revive them after they have been injured or stunted by drought.



Left: The Buchanan water supply with the pump shown in the distance at the end of the field.

Below: The pumping plant, which is just an oversize sturdy shallow well water system.



W. P. Buchanan, of Glade Spring, Va., started irrigating 5½ acres on an experimental basis in 1939. It was a dry summer for truck crops in Virginia. His outfit consisted of a 500 gallon per hour pump and four lawn type revolving sprinklers which were operated 24 hours per day. The pump was too small and was replaced with a larger one. Water was pumped from a creek.

Strawberry plants were irrigated on June 3, given a good soaking. They were irrigated only once. At the time of irrigating the largest fruits had reached the size of a grain of corn and appeared to have ceased developing. A careful record was kept of the yield. Mr. Buchanan says "We sold 748 gallons for a gross of $314.16 and saved 30 gallons for home use—a total yield of 778 gallons from a measured 0.9 acre. One of three varieties yielded at the rate of 1254 gallons per acre; the other two only half as much. The first bloom of all varieties was killed by frost. One very striking thing we observed was that certain small areas at the corners of the patch which did not get water, but which was as good land as the balance of it, bore very little fruit. I think a conservative estimate is that without irrigation the crop would have been less than one-third what was harvested and of very inferior quality.

"Our young strawberry plants irrigated in July, in spite of the unfavorable season, were superior to anything we had had before.

'The 1940 season was so favorable that irrigation was not resorted to. In 1941 there was such a serious dry spell that there was no crop of wild strawberries and most cultivated ones in this general section produced not more, some less, than a half crop, and these of an inferior quality. Our yield was doubled and the revenue more than doubled by irrigation. No irrigating was done until after the bloom dropped, when the soil was thoroughly soaked to a depth of about 12 inches, with no further irrigation. Earlier experiences indicated that irrigation after the fruit is well developed resulted in soft inferior berries. 822 gallons were harvested. 798 gallons were sold at $3.00 to $2.50 per crate; 24

gallons were used at home. Receipts from 1 acre $381.00."

In 1939 "from 1.9 acres we harvested 36,300 pounds of cabbage for which we received $349.50 gross. This is no remarkable yield except relatively speaking. Small areas at the corners of the patch which failed to receive water produced practically nothing. But in the cabbage matter we pulled several 'Mortimer Snerds'. The cabbage was spaced entirely too wide and we irrigated entirely too long, with the result that the maturity was delayed and unsalable heads produced. After coming to a small head the cabbage used such a surprising amount of water that we found it necessary to substitute a 1,000 gallon pump for the 500 gallon size.

"In 1941, 19,773 pounds of cabbage was sold from ⅞ of an acre for $331.44. The yield was nothing to brag about, but the quality was superior to unirrigated crops around us, and the yield was fully twice what it would have been without irrigation.

"We irrigated 2.33 acres of fall snap beans yielding 176 bushels for which we received $188.50. 1.9 acres of this had been in irrigated cabbage earlier in the season. 0.43 acres had been in early snaps, not irrigated. The 1.9 piece yielded fully twice as much per acre as the 0.43 acre piece which had not been irrigated during the preceding crop.

Residual Effect of Irrigation

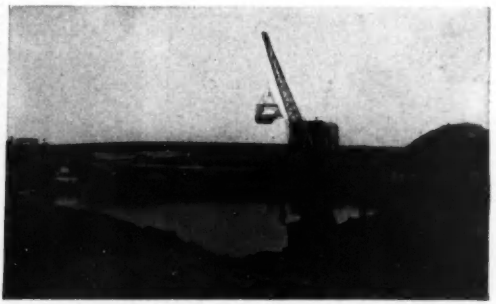
"This is mentioned to emphasize the residual effect of irrigation. On that point it might be said that the portions of the truck patch which received irrigation while growing cultivated crops give a growth of rye for turning under, much superior to those portions which were not irrigated during the summer.

"In a small way irrigation has been very profitable to us. One important thing we have learned is to treat the growing of these small things as things of importance, for, properly handled they are important from a revenue standpoint. In 1941 the power cost for irrigation was $7.64, negligible when compared with a gross return of $1,086.66 from 3½ acres of land—for half a season, for we have fall crops coming on now." (Written August 1941.)

Mr. Guy E. Studebaker of New Carlisle, Ohio, started irrigating potatoes in 1939. In 1941 he irrigated 40 acres of Irish cobblers, chippewas and katahdins. His outfit consists of a 500 gpm centrifugal pump drawing water from a large pond dug in the bed of Honey Creek. Water is lifted approximately 20 feet and supplied to rotating sprinklers at 45 pounds pressure. Light weight slip-joint pipe in 16-foot sections is used to convey the water. He has 1,550 feet of 6-inch main and 720 feet of 4-inch laterals. Sprinklers are spaced 48 feet apart and are left in one setting for 2½ hours to apply a depth of one inch of water. The system irrigates 1½ acres at a time and keeps two men busy. Fields are sandy, but are well fertilized with stable manure, green manure crops and 1,000 pounds of high potash fertilizer per acre. Mr. Studebaker has found that irrigation increases the size, yield and quality of the crop. More than 85% of the crop graded U.S. No. 1 last year. The average yield was between 375 and 400 bushels per acre which, Mr. Studebaker says, was 100 bushels better than without irrigation. Irrigation also provides moisture on the foliage which makes it possible to dust instead of spray, a faster and less expensive method.

Irrigated tomatoes on the Ed Fall farm near Toledo, Ohio. Overhead sprinkler system used.

Forrest Auckerman, of New Carlisle, started irrigating potatoes in 1938, and in 1941 had 70 acres under irrigation. He uses a centrifugal pump, quick-connect light weight pipe and rotating sprinklers. Having no stream, he hired a power shovel to dig a round pond 75 feet in diameter in the bottom of an old gravel pit. Groundwater stands in this pond to a depth of 10 feet. Mr. Auckerman says that even if the natural rainfall is normal, his irrigated potatoes yield enough better than those which are not irrigated to justify the additional expense.



Digging a pond for irrigation in Minnesota.

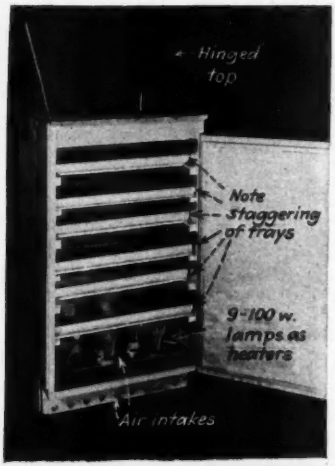
Ed Fall & Sons have been irrigating their truck farm since 1933. Water is pumped from a 6 inch cased well 200 feet deep with a 5 hp motor driving a 50 gpm reciprocating pump. An overhead pipe sprinkler system is provided for about 20 acres. Because of the limited water supply, only tomatoes, sweet corn and cabbage are irrigated. Irrigation continues from the middle of May into October. Night and early morning irrigation is preferred, but during dry spells water is applied night and day. Ten hours is required to put an inch depth of water on one acre. In a normal season, water is applied once in every ten days. The irrigated crops grade high and bring good prices. There has been practically no dry rot of tomatoes under irrigation. Irrigated cabbage averaged 8 heads to the basket and unirrigated cabbage, 11 heads. The Falls say they would not be without irrigation and they wish their water supply was adequate to cover their potato crop.

A report from the Tennessee Valley gives figures showing that irrigation was highly profitable on sweet and Irish potatoes and on pastures in the very dry season of 1941.

At the **Georgia Vocational and Trades School** farm at Monroe, the comparative yields of unirrigated and irrigated sweet potatoes was 50 and 266 bushels per acre. The cost of irrigating was $8.86 per acre.

On the farm of **S. E. Connor** of near Dayton, Tennessee, 3 acres of irrigated ladino clover carried 3.6 cows per acre for a pasture season of 210 days compared with the usual requirements of 1 to 2 acres per cow for non-irrigated, improved pastures.

Small Driers for Fruits and Vegetables



Upper: The completed cabinet ready for use. Nine 100 watt lamps are used as heaters. The cabinet is 21 inches deep inside with 18-inch square trays allowing three inches for air movement. Note how trays are staggered so air must come up and across each tray before it reaches the exhaust fan. Holes at bottom, front and back are air intakes; also through board to which lamps are attached. **Lower:** Back of the drier showing an ordinary household fan in the top of the drier for drawing air up past the lamps and through the trays. The top is hinged at the front. The wedge-shaped section and fan may be removed when the drier is not in use and the top dropped down level for table top. Note air intakes at bottom, and heavy cord to supply the 900 watts in heaters.

HUNDREDS of thousands of tons of eggs, milk, fruits and vegetables are being dehydrated in the United States this year. Dehydration is a common method of commercial food preservation. But this year when it is important to save tin and to reduce volume and weight of food products for transportation to our soldiers and allies, dehydration is more important. The dehydration of foods for home use may also be a "way out" where tin cans are not available and where only a limited amount of sugar is obtainable for canning.

Freezing vs. Drying

Where locker plants or home freezers are in use, some foods will be much better if frozen. They taste better, are more nutritious and contain more vitamins. Canning will be the old standby where cans, jar rubbers, etc., are available. But some foods are excellent dried. They store easily, keep well, and the cost of drying is low. Foods for drying must be carefully selected and properly prepared for good results, and the labor involved is greater than for freezing or canning.

In this article it is not intended to describe the selection, preparation and storage of dried foods, but rather to tell of some electrically heated driers which may be constructed at home. Instructions on selection and preparation may be obtained from the USDA and from many state colleges or home demonstration agents.

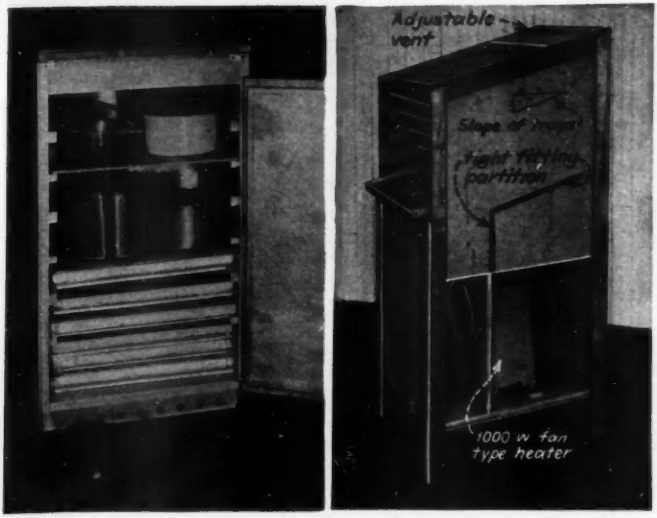
The Dehydrating Process

The process of dehydrating is one of removing sufficient water from the product to prevent it from spoiling in storage. The water is removed by heat and air movement. Within the temperature range for drying, an increase of 20° to 30° will double the moisture holding capacity (or drying effect) of the air. It is well, therefore, to use as high a temperature as possible without impairing the quality of the product. With some foods too high a temperature will result in cooking, or in a hardening of the surface so it is difficult to get the water from the inside. Temperatures up to 160° are satisfactory for most fruits and vegetables. Air circulation is created by convection caused by the heating elements, or more effectively by fans.

A dehydrator, then, consists of some sort of cabinet into which fresh food products may be put in relatively thin layers and around and through which heated air may be freely and uniformly circulated, and with provision to exhaust the moist warm air from the cabinet.

The drier in use. Every two hours the bottom tray is removed and all other trays moved down one space. Then the bottom tray is put on top and the process continued until all trays are uniformly dry.

Mimeographed Extension Circular No. 709 on the subject "Homemade Food Driers" has just been issued by the University of Nebraska, Lincoln, Neb. The authors are Ruby M. Loper, Ass't. Exten. Agricultural Engineer, and Mabel Doremus, Exten, Nutrionist. The circular gives detailed plans and bills of materials for making the electric drier shown in the accompanying illustrations and also driers for use in the sun and on a kitchen range. The advantages of



Left: When the drying season is over the top may be dropped down, the trays doubled up in the lower slides, plywood shelves put in and the top section used for storage. It may be stained or painted outside to match the kitchen cabinets. **Right:** This is a different type of electric drier built by the Editor of Electricity on the Farm a number of years ago at the University of Maryland. Trays are 18 inches square on sloping slides. The cabinet is built of insulating board and an ordinary 1,000 watt fan type heater such as used in bathrooms supplies the heat and air movement. A removable section permits putting the heater in place. It should be held tightly against the opening shown in the partition. Part of the heated air is recirculated by the fan, the adjustable vent at the top being regulated to discharge the moist air and let in fresh air. The cabinet and partition should be tight for efficient operation. The door in front of the trays and side section over fan have been removed to show interior.

the electric drier are the uniform temperature and controlled air movement which results in more certain drying and the fact that it may be used any place without interfering with regular cooking. The circular also contains some other helpful information on the drying process.

The lamp heated drier shown in the illustrations was developed at the University of Nebraska by Francis D. Yung. Lamps are used as heaters because they are easily installed and are available. Some other types of heaters can no longer be obtained. The cabinet is built on a frame of 1 inch material with ½ inch insulating board set flush inside the frame and thin plywood used for the outside. That leaves a ½ inch air space between plywood and insulating board. Trays are 18 inches square and covered with ¼ inch mesh galvanized wire screen. Slides for the trays are 4 inches apart. The bottom tray should be at least 4 inches above the lamp bulbs. Illustrations show other details of construction.

Four-Can Milk Cooler

. . . . . (Here from page 7)

"still water" type answers the requirements of the great majority of our dairymen.

To take care of the cases where collections are made less than 1½ hours after milking, or where special requirements of collections make faster cooling necessary, the "agitator" type of cooler should be used.

For retailers requiring immediate cooling, an aerator attachment circulating cooled water from the tank may be used.

Price and Operating Costs. Comparisons of the cost of electric cooling against cooling with ice prove very interesting to every dairyman in our territory. To do the same job of cooling with ice that is done with the four-can electric cooler, will take about 135 pounds of ice per day as I figure it. If ice is cut at home, the labor and storage will cost about 20c per cwt. or $8.10 per month. Electricity at three cents per kw-hr will cost $2.76 or a saving of $5.40 per month. An electric cooler costing $200 will pay itself out in thirty-seven months against the costs of cooling with home-cut ice, or in nineteen months when ice is purchased at 40c per cwt.

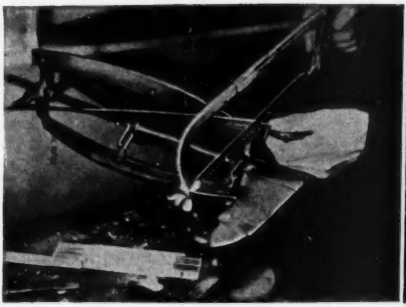
In the discussion above, I have mentioned only the four-can type of "wet" cooler, because I believe that this is the best size to buy for dairymen producing 160 quarts per day or less. Of course, if you produce more than this amount, there are other sizes of "wet" coolers available. The cost of the cooler and the cost of the electricity will be in approximate proportion to that of the four-can cooler.

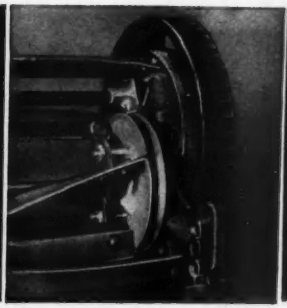
Our farmers find that the *cost* of milk cooling is only one of the factors to be considered. The labor problem is very important, particularly in the summer months when a great many other duties take up the time of the help. The second factor is the quality and cleanliness of the product with the electric cooler because of less danger of contamination. The third factor is that of being able to cool the milk to 45° within the time required by the State Board of Health. These three factors together with economy, have made electric milk cooling the standard for milk producers in this state.

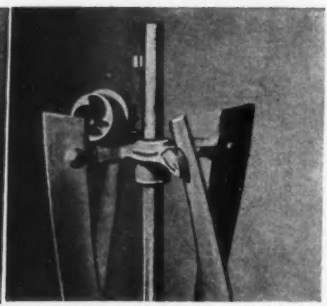
Salvage for the Future

Cold rolled shafting, angle iron, brace and strap iron cost money and are hard to get. Every user of farm machinery is likely to need such iron stock for repair work this year and certainly next, in view of the accelerated curtailment of new machinery manufacture. Making repairs and replacements will soon be the farm machinery maintenance practice. In selling your scrap iron and discarded machinery, you are urged by the Government to remove and save for repair work usable round, flat and angle iron stock, shafting, chains, standard pitch sprocket wheels and pulleys. It will take time to remove this valuable material but a reserve stock pile of such repair iron will be mighty handy in the years to come and will save the money otherwise spent for new stock, in addition to lessening the load on steel manufacturers for such supplies. *W. C. Krueger, N. J. Extension Service*

The President has reported to Congress that just over one-third of the shipments made under the lease-lend program in the first year were foodstuffs; 34% foods, 29% military items and 37% industrial materials.







Left: Take the mower apart and cut 3/8" or 1/2" off the end of each reel blade at one end to give clearance for the pulley and belt between the reel and wheel. A hacksaw will cut them easily. Use high-speed hacksaw blades if you want them to last. **Center:** Drill 1/4" holes through the pulley and two arms of the reel spider and bolt the pulley against the ends of the cutter blades. Get a pulley drilled to fit the reel shaft. On some mowers it may only be necessary to fasten the pulley to the shaft with set screws. **Right:** When reassembling the mower, leave out the pawls, or both the ratchet pinions and pawls on the ends of the reel shaft. These are used to drive the reel when the mower is hand pushed. The motor will drive it now. If you want the motor to propel the mower, leave in the pinions and pawls, but interchange them on the two wheels.

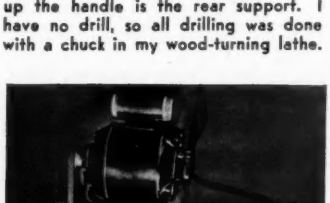
The Editor Motorizes His Lawnmower

LAST month I told you I was going to take a dose of my own medicine, and if I liked it, I would tell you about it. Well, I liked it.

My quarter horsepower, 1740 rpm, capacitor shop motor is now on my old lawnmower. I have used it to mow the lawn twice, and it works fine. There are some thick spots in the lawn where the grass grows so luxuriantly it used to stall the mower. I'd sail into it, then back up and shove in again, and back and shove. You know those spots. Now the cutter reel just hums along and I push slowly through that tough spot without a stop. Then I can ease up to a tree or a rose bush and clip the grass close by without that extra shove that often used to take the bark as well as the grass. I thought the cord attached to the mower might bother me, but it didn't. It is just a matter of working away from where the cord lays, and one soon gets the knack.

I followed the instructions for electrifying the mower that were given by H. R. Winters of Okla- . . . . . (More on page 24)

To support the motor, a base was made of 1/8" steel bent and drilled as shown. My scrap pile did not produce anything wider than 3", so I welded two pieces together. Strap-iron and a 3/4" board would do. The tie rod is the front support for the base and a piece of 1" angle iron fence post bolted through the small lugs that hold up the handle is the rear support. I have no drill, so all drilling was done with a chuck in my wood-turning lathe.



The assembled job. Nicely balanced on the wheels. I used 2" and 5" pulleys and a 28" x 1/2" V-belt. 1 1/2" and 4" pulleys with a 24" x 3/8" V-belt would be cheaper and possibly better, as it would give more clearance for the grass. Reel runs at about 640 rpm, which is equivalent to walking just under 3 miles per hour. Holes in motor base are slotted, which allows for belt adjustment. If the motor runs in the wrong direction, interchange the leads from the motor windings in the connection box. The motor has built-in overload protection.

A snap switch at the top of the handle makes for easy starting and stopping. A board screwed to the under side of the handle gives a place to wind the cord. No. 18 rubber covered super-service cord is best if it is available. In using, work out a system for mowing, always keeping the cord on the ground to the left or right of you and working away from it.

Evolution of a Farm Bath

The D. L. Davisson Farm Bath Started in the Grape Arbor, Moved Indoors to a Tub and Has Now Graduated to a Shower Cabinet

"WELL, our bathroom with its cabinet shower is finally completed. We think the cabinet shower is the perfect way to take a bath.

"We installed the shower as an addition to our old bathroom—mainly, I thought, for my own pleasure and convenience. However, after my wife enjoyed two or three showers, without getting her hair wet (due to that adjustable shower head directing the water against the body instead of the head), she agreed it was the best way to take a bath, too. So we got rid of the bathtub right away and put in a dressing table where the tub was.

"Before our sons were married and established their own homes, we fellows had a lot of fun under our home-made shower out under the grape arbor—in the summer time only, of course. Now, under our cabinet shower, it's more fun, more convenient and better all-around—in summer or in winter.

"With electricity on the farm to pump the water, we wouldn't be without our electric water system and cabinet shower bath.

"Yours very truly,

"D. L. DAVISSON.

That eloquent story in few words was written by Mr. Davisson to the man from whom he secured the shower cabinet. The pictures give the steps in the evolution from a cold shower under a barrel in the grape arbor to hot and cold running water in the new shower cabinet. Perhaps the Saturday night wash tub should be included; but who wants to remember that?

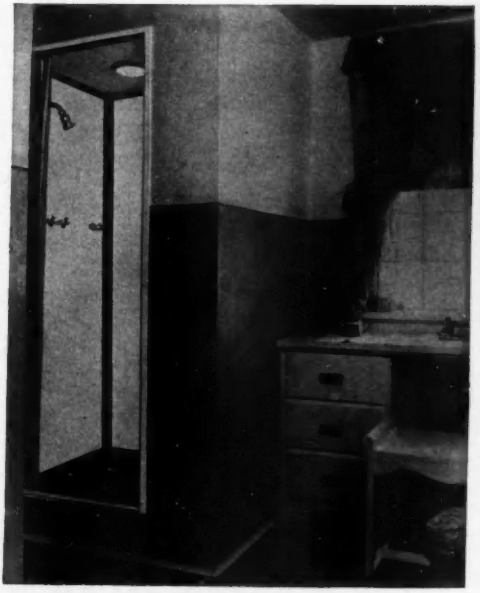
The Davisson bathroom is about as convenient as one could hope to have. It is close to the bedroom and the kitchen without opening directly off the kitchen. It is also easily accessible to the men coming in from work without tracking across the working space of the kitchen or through the house.

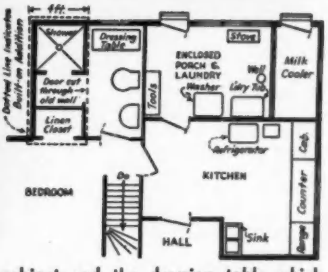
The four-foot extension to the old bathroom was provided before the family knew that they were going to like shower baths. The extension, however, also provided a convenient linen closet and space for the present dressing table.

Not every house offers such a convenient location for a bath, but a little study of most any house will usually locate a suitable place for a shower cabinet. Frequently the cabinet may be installed on a porch or in a summer kitchen with the entrance to the shower made by cutting a doorway from an adjoining room. The shower cabinet is leakproof and is independent of the walls of the house.

The *mourning dove*, sometimes called turtle dove, is the only game bird that breeds in every State.

Above: Mr. Davisson under the improvised outdoor shower. **Below:** A corner of the old bathroom.





Above: The remodeled bathroom showing the shower cabinet and the dressing table which replaced the old tub. **Right:** Floor plan of a corner of the house showing how the shower and linen closet were added, and the convenient location of the bathroom.

HE'S GOT HIS JOB ...YOU'VE GOT YOURS!

WE CAN'T all fire the guns. We can't all fly the planes and man the ships. But every one of us has a job to do, right here at home.

And no job is more important to victory than yours.

You can help to keep our soldiers everywhere fighting until they win. You can bolster our Allies. You can help defeat our enemies. Your food is a weapon to Freedom's fighting men. Your farm is an arsenal that provides the strength and stamina they must have to win.

That's why your land must produce more and still more of the food America needs for victory.

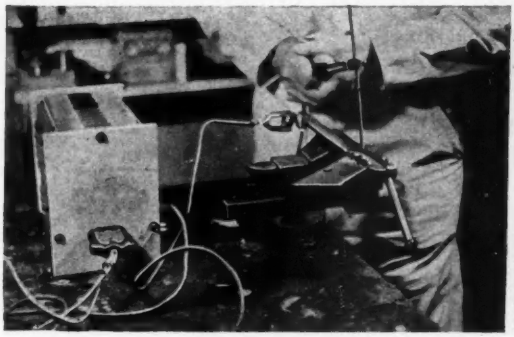
Electricity can help you. With electric power, you can produce more food, faster. Electrical equipment can take over many jobs you are now doing, relieve you for other work. And when the hard day is done, electrical conveniences contribute to the comfort and rest you need to be ready for another day.

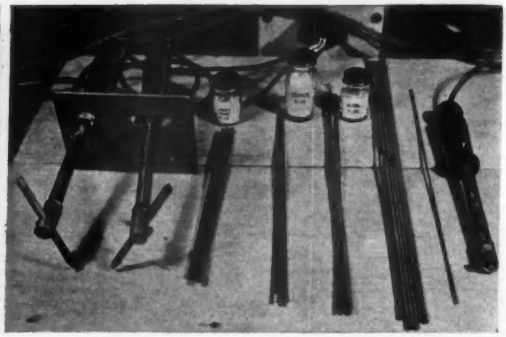
Look into electricity. Find out how you can best use it on your farm. And remember this: the name Westinghouse on electrical equipment stands for the highest development of all the good things that electricity makes possible.

Westinghouse

ELECTRICAL PARTNER OF AGRICULTURE

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa.





Left: Twenty ampere welder used by the author. Note the ground clamp on one end of the work with hand-piece with welding rod connected to the other side of the circuit. **Right:** (l. to r.) Hand-piece for carbon arc flame welding or brazing; cast iron rods and flux for flame welding of castings; brass rods and brazing flux; aluminum rods and flux; 3/32" shielded arc welding rods; one 1/16" shielded arc rod; rod holder for shielded arc welding.

SMALL WELDERS

By GEO. W. KABLE

FIVE years ago when I became editor of ELECTRICITY ON THE FARM we were carrying an advertisement of a small, inexpensive arc welder in which claims were made that sounded unreasonably optimistic for such a small outfit. Being more concerned about giving readers reliable information than about the money we would receive for that ad, we refused to print it. The manufacturer was provoked and told us so. Not wishing to be unfair, we asked him for a list of farmers to whom he had sold these welders. We wrote to 19 farmers explaining that we wished to check on whether the welder did what was claimed for it. Seventeen replied. One was disgusted with the unit and could not make it work. One was somewhat disappointed. The other fifteen ranged from being satisfied with the welder to being enthusiastic about it.

Last summer I visited the farm of county agent Will Gist near Wellsburg, W. Va. He has a good farm shop. In it was one of these small welders. In response to my question, "Does it work?," I was shown welds all over that farm. Some of them, such as old mine rails used as reinforcing, the cast spiders on the reel of a side-delivery hay rake, the moldboard of a steel plow, a home-made heavy duty trailer used for hauling hay, seemed entirely too heavy for such a welder; but there they were. Park Love, the man on the farm had done the welding; learned it himself.

For the past month I have had a $19.95 resistance type welder in my shop to find out for myself whether anyone without experience or expert guidance could do anything with it. The welder has a rated output of 10 to 20 amperes—just two heats. It is used on a 115 volt circuit protected by a 30 amp fuse. Such a circuit calls for No. 8 wire. The welder is equipped with carbon electrodes for flame welding and brazing, and with a handpiece for shielded metallic arc welding of iron and steel. It uses ¼" carbons and ⅛" or smaller welding rods. *I have found out some things about it.*

Small welder on the Will Gist farm in W. Va., the one that did the "unbelievable" welding jobs. It is essential to wear a shield to protect the eyes and face from the brilliant ultra-violet arc. Goggles are not sufficient.

It Calls For Practice

If you do not have patience and a willingness to take time to learn, do not try one of these welders. I have struggled for hours trying to learn to "strike an arc" and then to persuade my welding bead to penetrate the work so it would stick.

Park Love pointing out some small welder welds he made on the tongue of a heavy farm trailer.

I was tempted several times to give it up as a hopeless job—then I seemed to get the knack. I still make a sloppy weld on heavy material and am inclined to burn up the thin metal. There is nothing beautiful about a weld when I get through with it, but it holds. Skill and perfection might come with practice—long practice, like learning to play the piano. I'm in the "chopsticks" stage now.

It is much easier to learn to braze than to weld. When the work is properly heated with the flaming arc and fluxed, the brazing metal just flows into a seam or crack in iron. So far I have not tackled the flame welding of brass or aluminum. It takes skill. I have seen others do it well with a welder like mine.

Has a Place on the Farm

After a month's trial, and with the experience of a number of practical farmers in mind, I believe these small welders will find considerable use on farms where someone on the farm has a reasonable amount of skill with tools. Wherever there is welding to be done on iron that is more than ¼" thick, larger welders would be easier to use and would probably do a better and quicker job; but the larger welders cost more, require heavier wiring and a larger transformer. The larger welders provide a greater range of amperages for different types of jobs, making it easier to do a good job. I would surmise that more skill and patience are required to do a good job with the small outfit; but *you can fix the broken part.* And that may be the important thing on the farm.

—I'm proud I am a farmer!—

Willie, you stop tickling me!

Keep the WATER RUNNING!

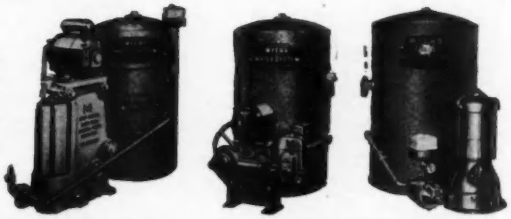
It's one of electricity's greatest services!

Two great allies—electricity and running water—are speeding food production for the war. An abundant supply of running water with a Myers water system means more milk, meat, eggs and vegetables—and more time and labor available for other farm work. It also provides many advantages for cooking, canning, sprinkling, fire protection, etc.

Lucky is the farm with a rugged, built-to-last Myers to keep the water running for the duration. Because of the emergency, fewer of these famous quality water systems are available than in normal times. See the Myers dealer near you about putting your present well equipment and water system (regardless of make) in condition for least costly, most efficient service.

MYERS *dependable* **WATER SYSTEMS**

Mail the coupon for name of your nearest Myers dealer and free booklet showing plunger and Ejecto types of water systems for either deep or shallow wells.



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Electrical Housekeeping

Edited by **GAIL MEREDITH**

Making Bread Better

IF anybody asked you what single food is served on your table more often than any other, the chances are high that you'd answer "bread." White bread. I wouldn't say that we have become vain of our skill in turning out a fine, light loaf. I wouldn't even mention that millions of us let some one else bake it for us. I'd just say that it has become a habit with our generation to serve white bread—ready sliced.

If we are studying ways to get better food for the folks at our table, it doesn't take much effort and it doesn't cost very much to give them whole wheat bread instead of white.

Nobody has to tell a farmer's wife that some of the most valuable food elements in the kernel of wheat lie in the bran coating and in the germ. These are not in the white flour we buy.

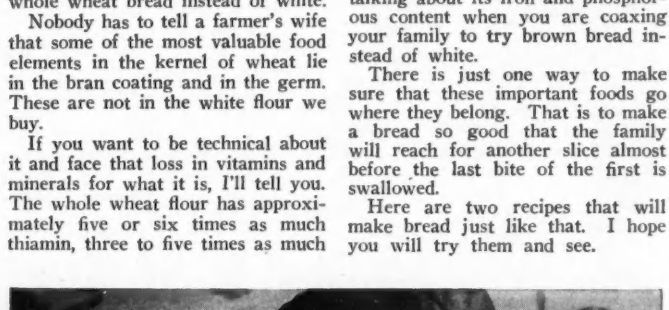
If you want to be technical about it and face that loss in vitamins and minerals for what it is, I'll tell you. The whole wheat flour has approximately five or six times as much thiamin, three to five times as much riboflavin and four times as much niacin as the average white flour. It has three times as much iron, calcium, and phosphorus, too.

If you agree with the food scientists that these elements are an important and necessary part of our food, you can see that we are prodigal with our wheat when we bypass the best part to our cows and pigs and buy what is left to make our bread.

That is the theory. But you can't get your family to eat whole wheat bread just because it is rich in thiamin. Nor will you get very far talking about its iron and phosphorous content when you are coaxing your family to try brown bread instead of white.

There is just one way to make sure that these important foods go where they belong. That is to make a bread so good that the family will reach for another slice almost before the last bite of the first is swallowed.

Here are two recipes that will make bread just like that. I hope you will try them and see.



Good whole wheat bread

Whole Wheat Bread

1 pint milk
1 tbsp. salt
4 tbsp. honey or molasses
¼ cup butter
5½ cups (approx.) finely ground whole wheat flour
1 yeast cake

Measure salt, honey, and butter and place in a bowl. Add scalded milk. Cool to lukewarm and add the crumbled yeast and two cups of flour. Stir with a spoon until the materials are thoroughly combined, add another cup of flour and beat well. 75 to 100 strokes. Add flour until mixture is stiff enough to knead. Knead until the mixture has become smooth and does uot stick to the board. (5 to 7 minutes or some 250-300 kneading strokes.) Place dough in lightly buttered bowl. Cover. Let rise at a temperature of 80-85 degrees. Allow the dough to double in bulk. punch down and form into 2 loaves Let rise till double in bulk. Bake in a hot oven, 425 for 15 minutes, reduce to 350 degrees and bake for thirty or thirty-five minutes longer.

Oatmeal Whole Wheat Bread

1½ cups milk
1 cup quick cooking oatmeal
2 tbsp. butter
1 13 oz. can evapor. milk
¼ cup honey
1 tbsp. salt
1 cake yeast
2 cups enriched white flour
3 cups whole wheat flour (approx.)

Boil milk, add oatmeal and cook 3 minutes. Add butter; when melted, add evaporated milk, honey and salt. Cool to lukewarm, add crumbled yeast and white flour and beat well (75 to 100 strokes). Add whole wheat flour until the dough is stiff enough to knead. Knead until mixture is smooth (5 to 7 minutes, 250-300 kneading strokes). Let rise until double in bulk, punch down and form into two loaves. Let rise until double in bulk, and bake at 450 degrees for 15 minutes; reduce to 350 degrees. The entire baking time should be 50 to 60 minutes.

The friend who gave me these recipes said she had often been criticized for setting down so definitely the number of beating and kneading strokes. Who would bother to count, ask her friends.

"Who'd ever take the time to do that," ask her friends.

"I've never found," she told me, 'that I did anything else while I was beating the bread. I might just as well count as not."

What I Can Do for Defense

By **MRS. G. D. CLOUSER**
Rossville, Ind.

(Winning Letter—March Contest)

"1. I plan to raise green vegetables to provide for table use fresh and enough to can and store for my own family needs, plus enough for my two married daughters who live in the city, thus conserving the canned foods on the grocer's shelves for those who are compelled to buy.

"2. I'll try to learn more about food for health, hoping this, plus other precautions, will safeguard the health of my family so we will not allow sickness to cut down on man hours for victory work. Soon our doctors will all be older men and probably overworked so I pledge to make no unnecessary calls and a night call only in an emergency.

"3. I will take good care of all household appliances. I am planning my work in order to save equipment, fuel, current, and time.

"4. I'll use the time I save on short cuts in my laundry work in giving special attention to the mending of all clothing and linens. I realize that everything we purchase ready made takes man hours of labor to produce. So the longer wear the less labor required for civilian products and more labor for wars.

"5. I'll salvage and save all waste paper, metals, rags, etc., and deliver them to the place designated in my community.

"6. I will not hoard anything, but will buy for all household and family needs as I did before war began.

"7. I will not complain when I must do without, but plan to invest the money that I cannot spend for things I want in war stamps and bonds.

"8. I will go to church because it steadies and strengthens my faith in God and renews my hope and ability to carry on.

"9. I will not neglect fun and recreation for same can be had for so little and means so much.

I will first take full charge of my job at home. I must get *me* to comply one hundred per cent with all defense obligations to my home and family before I pledge any outside work."

Watch Out for the Washer

IF you want to take good care of your washing machine—and who doesn't—you'd better begin by digging up your old instruction book and hanging it on a convenient nail somewhere so you can consult it now and then as a check on the way you are doing your washing.

One of the very first rules for the care of a washer in peace or war is to watch the load the manufacturer recommends. Too many clothes, heavier than the machine is built to handle, will overload the motor. Too much water, or too little, may damage the machinery, so keep an eye on the water line when you are filling the tub. The wash water should come up just level with it when the tub is loaded. There is no gain in dumping in an extra pail for luck, and you're not saving anything when you skimp on the water either. Follow directions.

When Starting the Motor

See that neither the washer, the wringer, nor the spinner is in gear and that the pump is unengaged

SAVE with this VICTORY RECIPE by

Sunbeam AUTOMATIC MIXMASTER

THE BEST FOOD MIXER MADE

Sunbeam BROWN BREAD

Delicious . . . nutritious . . . and NO SUGAR required

A modern, easy-to-make Mixmaster version of an old favorite. The combinations of flours and bran give this Brown Bread a delicious flavor, and the whole grains used make it a delicious every-day bread. A snap to make, too.

• INGREDIENTS—1 c. whole wheat flour, 2 c. all-purpose flour, 1 c. flaked bran, 1½ tsp. soda, 1 tsp. baking powder, 2 tsp. salt, ¾ c. dark corn syrup, 1 tbsp. salad oil, 2 c. buttermilk.

• METHOD—Mix dry ingredients in large Mixmaster bowl at No. 2 speed. Add other ingredients, and mix (still at No. 2) until well combined. Pour into a greased loaf pan about 9x5" and let stand 1 hour. Bake in a moderate oven of 350° F. for about 1 hour. Makes 1 loaf.

MIXMASTER SAVES MY TIME, ENERGY FOR RED CROSS WORK

MIXES MASHES WHIPS BEATS STIRS BLENDS JUICES POLES CREAMS

"Dial" YOUR FAVORITE RECIPE

Only Mixmaster has the exclusive MIX-FINDER Dial on which all the everyday mixing needs are plainly indicated. You simply "tune in" the recipe. And you know the results will have that "success secret" of delicious food—even, scientific mixing. Higher, lighter, velvety-textured cakes . . . creamy-fluff mashed potatoes . . . smooth-as-silk icings, sauces . . . more juice from the same oranges. No end to the time, armwork and money it saves.

CHICAGO FLEXIBLE SHAFT CO.
5600 W. Roosevelt Rd., Dept. 30, Chicago
Canada Factory, 321 Weston Rd. So., Toronto
Over Half a Century Making Quality Products

Famous for Sunbeam TOASTER, IRONMASTER, COFFEEMASTER, SHAVEMASTER, etc.

when you start the motor.

When you are getting ready to wash make sure that the strainer is in place in the drain outlet. If you forget it, you may find buttons slipping down the drain into the pump where they might do considerable damage. Keep the strainer clean and unclogged. If it is an automatic washer you are using, make sure that you clean the lint from the trap after each washing.

It is plain to anyone that you must have a clean machine to get clean clothes, so take a soft cloth and wash the tube free of any soap curd or lint when the washing is done. Lift the removable agitator or suction cups off the post and wash the post free of threads, or lint, or soap. Clean off the bottom of the agitator or cups. Wipe a metal tub as dry as you can, then leave the cover off for a while to give the tub a chance to dry thoroughly. If it is a wooden tub you are using, it is well to leave a little clean water in the bottom of the tub.

Wringers need respectful care these days. As soon as you are through using yours, release the pressure on the roll. This will prevent the rolls sticking and is easier on both the rubber and the spring. Wash the rolls carefully with warm, soapy water, rinse them, and wipe them dry.

When you are not using it, keep the machine in a clean, dry, cool place, out of the hot sun and away from the heat of the stove. Heat rots rubber.

Those of us who view scientific research at close range know it to consist more of hard grind than glamour.—*Dr. John R. Mohler, U. S. Dept. of Agriculture.*

If You Want to Save Current

Move your refrigerator away from the wall so the warm air can get away from the cabinet into the room.

Do not overcrowd the shelves. Leave space between dishes so the air can circulate freely. Put little dabs of food in small containers so you won't be chilling a lot of crock-

ery or glass ware you do not need cold.

Do not store in your refrigerator anything that will keep safely on your pantry shelves. Put cans of fruit, juices, or fish in the refrigerator for chilling when you are getting ready to use them.

Don't put hot food in the refrigerator.

Remember that quick freezing takes more current than operating your refrigerator at normal temperature. Turn the control back where you usually have it as soon as your dessert is frozen.

Don't let more than a quarter of

June Contest

In thousands of farm kitchens all across the country women are getting meals, making jams, canning tomatoes, and sterilizing the baby's bottles in their electric roaster ovens.

You know that any woman wants to make her equipment work full time these days. You may be able to help your neighbor get a little more work out of her roaster oven if you will tell us how you use yours.

That is the subject of our contest letter for June. Don't make it long, but do tell the whole story.

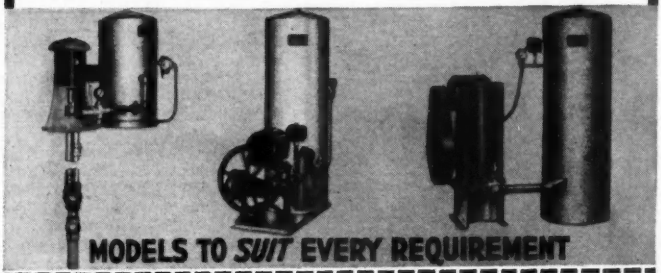
The writer of the winning letter will get $5.00.

Send your letters in by June 30, to Gail Meredith, 700 S. Mills St., Madison, Wisconsin.

A GOOD WAY to *INCREASE YOUR* FARM PRODUCTION for DEFENSE

An Aermotor Water System will enable you to increase the supply of milk, eggs, cattle and hogs needed for America's defense. This increased production will also bring you extra money regularly.

Aermotor gives you a wide choice of deep, shallow well, and jet pump systems. Each unit offers you many exclusive features. All assure you of unusually economical and trouble-free service. Get details today.



MODELS TO *SUIT* EVERY REQUIREMENT

Dept. E-3. Send me free book on water systems.

*Name*_____

*Address*_____

AERMOTOR CO. 2500 ROOSEVELT ROAD - CHICAGO, ILL.

an inch of frost pile up on the chiller. Defrost promptly because the motor has to run too much of the time when the ice gets thick.

Don't open the refrigerator door and stand there mooning over what to have for dinner. Cut down the number of times the door has to be opened by planning what foods you need. Take them out quickly, and get the door shut again in a hurry.

Opening and shutting the door every few minutes makes the motor work longer to keep the refrigerator cold.

Crush Fruits for Freezing

Where it is not essential to preserve fruits in their original shape, the U. S. Department of Agriculture states that the natural fresh fruit flavor and color and aroma can be preserved to a higher degree in sliced, crushed and pureed fruit and with less added sugar than when the fruit is frozen whole.

Anything made of iron and steel is becoming increasingly scarce for civilian use. Save the old nails, screws and bolts. Straighten the nails and stir them in a little oil to stop rusting. You may be glad to have them before the war is over.

Keeping a Good Egg Good Is Equal to Laying One

In 1941, the average American ate 6 eggs a week, marketing officials of the U. S. Department of Agriculture estimate. Some ate more, and some fewer, of course. The egg production goal for 1942 in the Food-for-Freedom program—4¼ billion dozen eggs—means an increase of about 13 percent in the number of eggs produced—7 eggs for every 6 laid last year. Most of the increase is needed for egg shipments to the United Nations. However, Americans could still eat their 6 eggs a week if some of the waste of good eggs between the nest and the table can be prevented.

Poultry specialists say that fully 5 percent of the eggs ordinarily produced in both small and large poultry flocks are lost for preventable reasons. Even if this loss averages only an egg a day on each farm the total is huge.

Causes of egg loss include producing fertile rather than infertile eggs, and holding them in too warm a place; failing to gather and cool all eggs promptly; lack of moisture in the holding room, resulting in shrinkage of egg contents; dirty eggs; unnecessary breakage from rough handling and bad packing; permitting broody hens to set on eggs and ruin them.

If egg producers succeed in holding egg loss to a minimum, reaching the 1942 production goal of 4¼ billion dozen eggs may also mean nearly complete utilization of that many eggs.

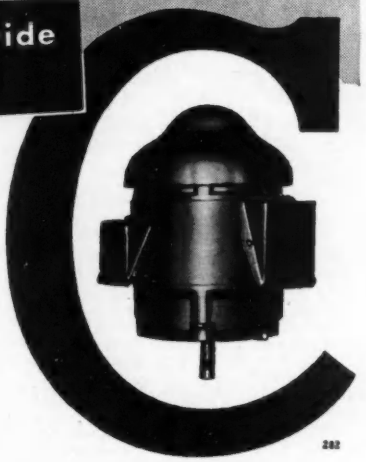
Luminous Paint and Fabric

Manufacturers have recently made available a new luminous paint and a fabric which will glow for hours after it has been activated by ordinary daylight or lamplight. The paint is a flat white in color and will glow brilliantly for hours after activation. The fabric has similar properties. Suggested uses have been for hatbands or legbands for persons walking on highways in blackouts. The paint applied to the inside of lamp shades would glow dimly after the light was turned out in a blackout.

Agriculture is the nation's most dangerous industry, according to the National Safety Council. The annual farm death toll from accidents is 4,500; manufacturing takes 2,000 lives and mining, quarrying, oil and gas wells only 1,800.

CENTURY Vertical Mounted Capacitor Motors

Are Especially Engineered to Provide *Better* Jet-Pump Performance



Century pioneered the development of Capacitor Start Induction Motors for Jet-Pump application, and so accurately do these motors meet this specialized requirement that many thousands are now in use.

They are engineered with less slip and better speed regulation — so that the nozzle velocity of the pump remains constant, giving a steady stream of water and more g. p. h.

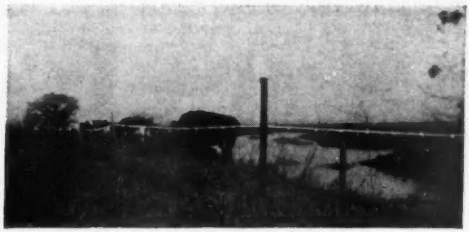
For the most efficient, most economical jet-pump performance, specify Century Vertical Capacitor Motors on the equipment you buy — one of the many types of Century Motors that are doing those back-breaking farm jobs faster and easier for thousands of American farmers today.

For full information, see your equipment dealer or write direct.

CENTURY ELECTRIC COMPANY
1806 Pine Street, St. Louis, Missouri
Offices and Stock Points in Principal Cities

Century MOTORS

One of the Largest Exclusive Motor and Generator Manufacturers in the World.



Saving with Electricity

THERE were so many good letters submitted in our contest, Electricity Saves Waste, that only part of the letters were published in the May issue. Here are more of them with ideas we think will be helpful to you. They have helped the farm people who have used them and sent them in to us.

• **"We save waste** the whole year round with an electric refrigerator.

"Last year we saved half on meat bought for threshers by buying at a 'week-end special' and keeping until needed. It was extremely hot, and after we had prepared for the threshers, we found we would not have them until the next noon. Everything was put in the refrigerator. There was no waste.

"At canning time we pick fruits and vegetables when they are ripe and keep them in the refrigerator until we have enough to can in larger amount so we can save on time and fuel.

"Often we butcher when the weather is changeable—freezing one day and warm the next. With the electric refrigerator the meat is kept at an even temperature and the flavor is retained until the last piece is used.

"Now that we must save tires and gasoline and time, we are buying in larger amounts than ever before, and the food is as good in the refrigerator as when purchased."

MRS. EARL RAY BORDNER,
R. 1, Dakota, Ill.

• **"We have a dairy** ranch and milk about 75 cows. We are out of hay, and the pasture is still short (March). A small river runs through our place. It is dry in summer as so many California streams are, but after the winter rains there is good feed along the banks and sandbars. Previously this was mostly wasted. Now we have an electric fence along the banks to confine the cows and they convert this waste into extra profits to invest in War Bonds."

MRS. F. E. MCLAUGHLIN,
R. 2, Chowchilla, Cal.

• **"We installed an electric steam boiler** in our dairy house to keep the water hot while washing the bottles and found the saving on fuel and dairy powder more than paid for the electricity and will soon have paid for the boiler, to say nothing of time saved"

MRS. H. D. MCMILLIN,
R. 5, Box 293, Salem, Ore.

• **"Electricity saves waste** in our home on the farm. I plan my meals for a week and purchase my food on a day when it is on sale (they have sales each week) and store it in my electric refrigerator. I also store the leftovers from each meal, which, when blended together makes a wholesome meal. The savings I make in money and food by this arrangement is well worth the trouble figuring out a weekly plan."

MRS. H. E. MOORE,
R. 5, Richmond, Va.

• **"Instead of wasting** the laying mash in the fall by letting the roosters eat it, they are dressed and quick frozen for future use.

"It takes a lot of meat for harvest hands. We butcher this ourselves and it is kept by electric refrigeration.

"We live sixteen miles from town, and during the busy season it is sometimes hard to get our cream and eggs to market, refrigeration saves them also.

"Living so far from town, it is going to save a good many extra trips this summer, thus saving our tires, gasoline, etc., for Uncle Sam."

MRS. TAYLOR ABNOT,
Pingree, Idaho.

If you have commercial time switches on your poultry house lights or other equipment, now is a good time to send them in to the manufacturer for any necessary cleaning and repairs. It will help you and the factory too to have the switch ready when you need it this fall.

Just Plug In
THIS SHALLOW WELL
Water System

IT GIVES EXTRA WATER
at No Extra Cost

Just attach this Fairbanks-Morse Home Water System to your well, couple to your piping system, and plug in to an electric outlet. It's as easy as that to install, for it comes completely assembled, completely wired. And it supplies water at sustained pressure for from three to six taps . . . operates quietly, automatically. There's *only one moving part*—no belts, no gears, no pump leathers to wear, no valves to stick. See your F-M dealer for a demonstration, or write to Fairbanks, Morse & Co., Dept. F107, 600 S. Michigan Avenue, Chicago, Illinois.

The Only COMPLETE *Line of* HOME WATER SYSTEMS

F-M makes all types—ejector and piston—for shallow and deep wells—in a full range of sizes from 200 g. p. h. Unbiased advice . . . a name that means *dependability!*

FAIRBANKS, MORSE & CO.
Manufacturers of Precision Equipment for 112 Years

By JEROME J. HENRY

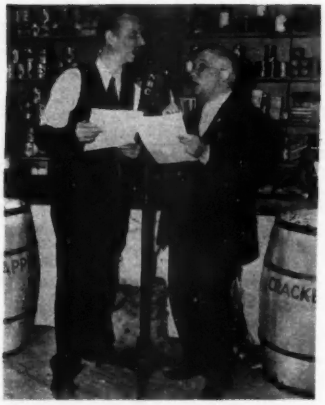
Mystery Writer Keeps Himself Guessing

"If I wrote my mysteries so that listeners could guess the identity of the killer, there would be no mystery. And as long as I don't know who is guilty, how can anyone else?"

So reasons Carlton E. Morse, author of the "I Love a Mystery" radio series.

A radio writer asked him once matter how well my listeners may have guessed, have I, helpless author, known the name of the guilty person until the climax of each story," he says.

(Morse also writes "One Man's Family," certainly at the other end of the scale of radio entertainment. But he insists that the contrast between the two programs makes each serve as relaxation from the other.)



Lum and Abner, the two homely philosophers from Pine Ridge, Arkansas, who have become the Blue Network's famous radio general storekeepers, are constantly starting new enterprises. Usually Lum, who in real life is Chester Lauck, is the proprietor, and Abner, the heckling partner. Abner is Norris Goff.

"Aren't you afraid you'll get your characters into a situation some time, that you can't get them out of?" And Carlton replied that frankly he was scared that some time he would.

"In San Francisco many years ago I used newspaper background for a series of adventures and mysteries. When I discovered Jack, Doc and Reggie, however, I started a chain of adventures that have evolved into 19 books, or more than 1,500,000 words. And not once, no

Billy's Been Through The Mills

Bill Mills, general musical director of the "Fibber McGee and Molly" program, has given the downbeat for more than 10,000 radio programs since he first took to the air in Chicago way back in 1923.

At one time he conducted and supervised more than 25 programs a week. He made his first broadcast from the old Marigold Gardens in Chicago when radio was still called the wireless. Bill still remembers how, after the program was over, his friends kept telephoning him to report that they had actually heard him.

Billy earned his way through school as a pianist in the town theatre at the University of Michigan.

To My Lady of The Flighty Feet

Most people who trip and fall a lot arise with only bruises,
But comic Miss Joan Davis always gains more than she loses.
On stage and screen and radio for lo these many, many years,
She's tripped herself to many a fall; but not shed any tears.
Miss Davis' two ungainly feet have proved to be her fortune.
They won for her a guest shot with their comical distortion.
She tripped her way into the Red on shows of Rudy Vallee.
There you may hear her Thursday night, make many a raucous sally.

New 100 Watt Lamps Smaller

New 100-watt lamps are now being made the same size as 75-watt lamps. In recent years most lamps have been reduced in size. The 100 and 75-watt lamps will now be designated as A21, 50's and 60's as A19. The number following the A indicates the maximum bulb diameter in eighths of an inch.

You can't afford to waste your footsteps NOW!

Lugging Hot Water Around Is Wasteful and Unnecessary

The slow, inconvenient lugging of hot water to utensils or utensils to hot water is now a thing of the past on many dairy farms, thanks to the efficient, economical Surge *Dairy-Maid* Electric Water Heater. Remember, Hot Water is absolutely essential to CLEAN MILK. Don't skimp on Hot Water when you can easily have it in abundance, always, when and where you need it . . . at such small cost.

A DEMONSTRATION FREE

Let us arrange for you to enjoy the advantages of the *Dairy-Maid* for thirty whole days free, without obligation of any kind. Learn how low wattage heating, plus automatic control, and heavy insulation keep costs down to an almost unbelievable minimum. The *Dairy-Maid* needs no pressure . . . and no expensive installation. Just plug it in.

SURGE DAIRY-MAID WATER HEATER

Will save you money. We'll gladly prove it to you.

FREE! Book "The Magic of Hot Water" This book is full of helpful hints for the use of Hot Water on the dairy farm. It is yours for the asking. Send for it today.

BABSON BROS. CO.
2843 West 19th Street, Dept. A-551, Chicago, Ill.

Summer Ventilation of Hen Houses

The A. C. Kater poultry farm at La Porte, Texas, has a fan installation for keeping broilers and fryers grown in batteries comfortable in hot summer weather. The battery house is 18 x 36 ft. with two rows of five batteries of five decks each. A 14-in. fan on the shaft of a ¼ hp motor and with a capacity of 5,000 cu ft per min is mounted in a circular opening near the top of the gable in one end of the house. Air intakes 10 x 24 in. are cut in the floor four feet apart under each row of batteries. Doors and windows are kept closed. When air is exhausted out of the top of the building, outside air comes in through the openings in the floor and is spread out by the solid bottoms of the battery units. The fan provides a complete change of air in the room about once every 70 seconds.

There have been no bad odors in the house and the air change has helped to keep the birds comfortable. Evaporative coolers for hen houses have not proved practical in East Texas because of dampness which causes colds and roup.

Upper: Fourteen-inch exhaust fan near the gable in one end of the house.

Lower: Batteries have been moved back to show air intakes through the floor. Bottom of batteries act as baffles.

USDA Farm Products' Buying Passes Billion

Purchases of farm products for Lend-Lease and other requirements have passed the billion dollar mark, AMA reports. Through April 22, purchases totaled $1,010,000,000. First delivery was to British Government April 29, 1941. Of purchases, dairy and egg products led field, accounting for $377,000,000. Next in value was meat products, $310,000,000. Fruits and vegetables accounted for $75,500,000. Purchases of grain and grain products totaled $26,400,000; fish, $24,000,000; vitamin concentrates $4,300,000 and $28,400,000 for miscellaneous foodstuffs. In addition, AMA bought corn, cotton, gum resin, wheat and tobacco from CCC totailng $146,700,000. *USDA Press Summary*

Garlic in Milk

How fast garlic flavor can get into milk when a cow gets into a garlic patch is shown by studies made by the U. S. Department of Agriculture.

A cow doesn't even have to eat the garlic to have her milk affected. She need only smell it—or at least, inhale it steadily for 10 minutes, as she might when browsing a garlicky pasture. The milk will have a strong garlic flavor and odor 2 minutes after a cow inhales garlic for 10 minutes.

Still faster is the effect of eating the garlic. When cows were fed half a pound of garlic experimentally, slight garlic flavor and odor were detected in the milk one minute later. The intensity of the garlic flavor and odor increased with the interval following the feeding. In 10 minutes both were very strong. Not until 7 hours after the garlic feeding did the undesirable flavor and odor disappear.

Motorizes His Mower

. . . . . (Here from page 12)

homa in the April 1940 issue of ELECTRICITY ON THE FARM. They are repeated here because new electric lawnmowers may be hard to get this year, and the motor drive may be more desirable than ever because of labor shortage. If you have the motor and cord, the job of electrifying your own mower need cost not more than $1 or $2. The steps in the process are shown in the illustrations.

First, I gave the old mower a good cleaning, especially the bearings, and I adjusted and sharpened it. Do that, if you are going to put on a motor. Then keep the mower well oiled.

★ *Buy U. S. War Bonds* ★

Monarch ELECTRIC and COAL-WOOD COMBINATION RANGES

Today's most popular "high line" range: electric on one side—coal or wood on the other. Provides year 'round kitchen comfort.

See a MONARCH outlet or —

Write for booklet illustrating complete line.

MALLEABLE IRON RANGE CO.
1242 Lake Street Beaver Dam, Wis.

Fast milking + easy cleaning =

less work, more $ with PAGE Portable Milker

Milks 20-25 cows an hour. Safe vacuum control for each cow gets *more milk*. Double or single units. Sanitary *visible* chamber . . . no dirt-catching corners. *Clean in a jiffy.* Gas or electric. Write for *free* colorful catalog.

Write Today for FREE Colorful Catalog

Pioneer Mfg. Co.
Dept. MK 62
WEST ALLIS, WIS.

Get this HIRED HAND!

CLEAN-EASY MILKER
WITH NEW GLASS MILK PAILS

Clean-Easy revolutionizes machine milking! New, sanitary glass milk containers give you "sight" milking—you know at a glance what your cows are doing! You get fast, clean, easy milking with less work! Gas or electric power, transparent or rubber teat cups, portable or track models. Write Ben H. Anderson Mfg. Co., Madison, Wis., Dept. 15

Questions and Answers

Killing Grub Worms

▶ **Question:** *Can you give me any information as to the killing of grub worms by electricity?*

S. C., Mass.

▶ **Answer:** I know of no way of killing grub worms with electricity except by sterilizing or pasteurizing the soil with electric heat.

Oven Insulation

▶**Question:** *Could you tell me the cause of excess heat being felt on the outside of an electric oven; it has been doing this for about three years—has been used for twelve years.* Mrs. F. R., Ill.

▶**Answer:** There may be several reasons for heat outside of your oven. Examine the door carefully to be sure that it closes tightly. Some hinges have adjustments to make the door fit properly. If the door fits and the heat seems to be coming through the oven, it is possible that the insulating material has settled or broken down.

Rewinding Motors

▶**Question:** *Will you please be good enough to let me know where I can get a book on armature and field windings—A.C. motors 5 hp and under. I want to review the latest practice in winding, proper slot insulation, etc., so that we can recondition motors now out of service.*

G. F. S., Idaho

▶**Answer:** Following is a list of books on the subject: Veinott—Fractional Horsepower Electric Motors, $3.50; Braymer & Roe—Rewinding Small Motors, $2.50; Braymer & Roe—Rewinding and Connecting A.C. Motors, $3.50; Braymer—Armature Winding and Motor Repair, $3.00. All are obtainable from McGraw-Hill Book Co., Inc., 330 West 42nd St., New York City.

Power for Wood Saw

▶**Question:** *We use a 2 hp motor to cut wood and when wood is dry and hard it's difficult to cut as it pulls motor down out of high easily. There is a small pulley on the motor and a 10 in. pulley on saw rig. The saw is, I believe, 24 in. Also have a 12 in. saw. Belt is about 4 in. wide and saw rig is some 10 ft. from motor.*

Please tell me how to get better and more efficient work out of this outfit? Should I use small saw, or smaller pulley on saw outfit or what? Takes too much time now and causes too much worry about overload.

R. C. B., Vt.

▶**Answer:** I surmise your 2 hp motor is just too small to do a fast job of cutting hard dry wood. In order to get anywhere near the proper speed on your saw, your pulley ratio should be about 6 in. on the motor to 10 in. on the saw. This would give you only two-thirds of what is recommended as the optimum saw speed. If you use the 12 in. saw you should have a pulley on the motor as large as the one on the saw. You can increase the efficiency of your outfit by using larger pulleys and by using V belts.

Feed Room Elevator

▶**Question:** *I have read much of lifts used to get feed from one floor to another in poultry houses of two or three stories. Here is what I want to know: On what principle do these lifts work: Are they run by electric motor or by weights? Do you know where I could get plans for such a lift?*

C. M. B., Pa.

▶**Answer:** Elevators for farm buildings may be operated either by hand or electric motor. If the lift is small, say from one floor to the next, and the elevator is not used frequently, a hand lift might be satisfactory. The operating mechanism of an elevator is essentially a hoist. The electric elevator is an electric hoist with suitable controls. The following companies near you make elevators of both kinds. Energy Elevator Co., 3rd & New Sts., Philadelphia; Speidel Elevator Corp., 245 West Buttonwood St., Reading, Pa. There are many other manufacturers of similar equipment.

Lamp Starts Fire

▶**Question:** *Our house was almost burned down as I sat reading on a recent Sunday evening. A fire started at the cord of the lamp on my daughter's desk in her bedroom. This lamp was a gift and had not been moved about or used in such a manner as to have worn the insulation.*

Can you tell me what made the

RUNNING WATER INCREASES PRODUCTION

CUT SHOWS TURBO-LIFT SHALLOW WELL SYSTEM WITH 7½ GALLON TANK

Regardless of the depth of your well, its size, amount of water required or pressure desired at surface—

AMERICAN-MARSH CAN FURNISH THE PUMP

And, whether you have a deep or shallow well, you will have a noiseless pump with ONLY ONE MOVING PART!

INVESTIGATE NOW! DON'T DELAY!

Tell us your requirements and obtain our recommendation without any obligation to you.

AMERICAN-MARSH PUMPS, INC.

BATTLE CREEK, MICHIGAN, U. S. A.

sudden blaze of fire? If this is a possibility, then all our cords are not safe and we prefer this sort of fixture over the permanent kind.

J. C. H., Pa.

▶**Answer:** Without actually examining the lamp and desk it is very difficult to say what might have caused the fire in your daughter's room. If you are sure there was no other source of fire than the lamp, it must have been caused by a short circuit. The short might possibly have been due to a defective cord, particularly, if it was some of the very light weight cord without underwriter's approval; or if the lamp was made of metal and was standing on anything connected to ground it might have been due to a short in the lamp socket. If care is not used in connecting the wires in the lamp socket some of the strands may come in contact with the metal shell. There should be no occasion for a fire from a properly constructed new lamp made with approved materials.

Hot Water for Out-building

▶**Question:** *Have an out-building 30 feet from my basement. I would like to know the best method for piping hot water from an electric heater to the outbuilding. Is it practical to leave the hot water pipe in contact with the cold earth?* W. R. S., Ohio

▶**Answer:** If when you use water at the out-building, you will be drawing it continuously throughout the day, it would probably pay you to lay a 4-in. tile or iron soil pipe from the basement to the out-house and place your hot water pipe inside with rock wool insulation between the two pipes. If hot water will be needed only occasionally, you could run an exposed pipe overhead making provisions for draining it so that it would not freeze or you could run the pipe in a tile line buried below frost and centered in the tile line with wood spacers. Be sure to make provision for keeping water out of the tile line or for draining it out if it should get in. It might be cheaper for you to provide a separate water heater for the out-building.

Reconditioned Motors Available

▶**Question:** *Where can I buy reconditioned used motors that have a one year or better guarantee? I want single phase motors up to 7½ hp.*

L. L. K., Va.

▶**Answer:** Look in the classified telephone directory of any large city under Electric Motors. Most cities have dealers and repair shops and rewinding shops that buy, sell and recondition motors. In New York City there are several hundred such dealers. We wrote to nine of these last week and have replies back from several with lists of guaranteed, reconditioned motors of standard makes for sale at reasonable prices. A recent ruling of the OPA sets maximum prices for reconditioned motors as follows: Guaranteed motors and parts 85% of price new on Oct. 1, 1941; other used motors and parts 55%.

How Much Power Will My Creek Generate?

Many inquiries are received from readers each year asking about the generation of electric power from small streams. Anticipating more such questions now that the WPB has placed restrictions on the extension of high line service, the following table has been prepared. The figures are only approximations. They are based on an estimated turbine or water wheel efficiency of 75% which is close to the maximum which could be expected, and a generator efficiency of 70%. They do not take into account any belt or transmission line losses or friction losses of water in pipes.

In order to estimate power it is necessary to know quite accurately the available vertical fall of the water in feet and the quantity flowing per minute or hour. A "3 in. pipe flowing full of water" means very little as you will recognize when you stop to think of a 3 in. fire hose flowing full and a 3 in. drain pipe also flowing full. The fire hose delivers many times as much water as the drain pipe. You must measure the water in gallons, or cubic feet or barrels flowing per minute. Manufacturers of water wheels and turbines can give you several methods of estimating stream flow or measuring with weirs.

Water Required at Different Heads to Generate 1 Kw of Electricity

Head or Fall—Ft	Gallons per Minute	
5	2000	
10	1000	= 20 bbl.
15	670	
20	500	= 10 bbl.
25	400	
30	340	
40	250	= 5 bbl.
50	200	
60	170	
80	125	
100	100	= 2 bbl.

Or use this formula

$$\text{Gallons per minute} = \frac{10{,}000}{\text{Feet head available}}$$

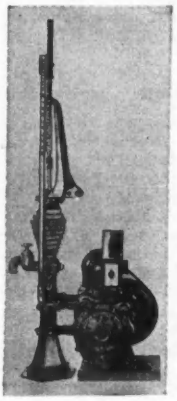
One kilowatt will operate a modern electric iron or ten 100-watt lamps or a small water system and milk cooler.

What's New

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Delayed Action Pump Switch

This pump jack motor is equipped with a delayed action switch. If you want to pump for 30 minutes, just set the switch for 30 minutes and and leave it. Thirty minutes later the pump will stop, while you are going on about your other work. May be set for any period up to 6 hours. Switch is enclosed in vermin-proof, moisture-proof box and is suitable for motors up to ¾ h.p.



New Publications

(*Publications are obtainable from the addresses given in the descriptions.*)

• PRESERVING FOODS IN FROZEN FOOD LOCKERS. Circular 209, Kansas State College, Manhattan, Kas. 30pp., illus. Methods of packing, containers, varieties, cutting and wrapping meat, Kans. sanitary regulations for locker plants, charts showing cuts of beef, pork, veal and lamb.

• HOW TO CONSERVE WITH HOTPOINT ELECTRIC APPLIANCES. From Hotpoint Dealers. 22pp., illus. Conserving vitamins and minerals, saving with the refrigerator, electric range, water heater, dishwasher, disposall and in the laundry. Useful, timely tips on care and use of equipment; menus; recipes.

CLASSIFIED ADVERTISING

MODERNIZE ELECTRICALLY! Complete poultry farm supplies; Infra-Red Ray Brooders, Thermostats, 150 items. *Free 52-page Catalog.* Parts and Plans for building your own brooder. Write today! LYON ELECTRIC COMPANY, Dept. EF, Greensboro, N. C., or San Diego, California.

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Best Letter Contest

SUBJECT: "How an Electric Water System Increased Production on Our Farm"

RULES FOR

BEST LETTER CONTEST

- Cash prizes will be awarded for the best letters or statements on how an electric water system increased production on our farm.
- Letters need not be lengthy—the shorter the better. Facts and figures are more important than literary style or form of presentation.
- There will be one first prize of $20.00 cash, one second prize of $5.00 cash, and five prizes of $3.00 cash.
- We will also pay $1.00 for any other entries we use.
- In case of a tie each winning contestant will receive the full cash prize to which he or she is entitled.
- We will also pay $1.00 to $3.00 for any photos we can use.
- All members of the farm family to whom this magazine was sent may enter, but each contestant may submit only one statement.
- The decision of the judges is final and all entries become the property of this magazine.
- Winning names and entries will be announced in the August, 1942, issue.
- Send your entry on a plain piece of paper, letterhead or government postcard.
- Entries should be sent to the War Production Contest Editor, ELECTRICITY ON THE FARM, 24 W. 40th St., New York, and must be postmarked before July 1.

INFORMATION SERVICE

As a reader of ELECTRICITY ON THE FARM you are entitled to our information service free of cost. Here is how it works.

Whenever you are seeking information about any piece of equipment or material that you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want, just use the blank at right to tell us your problem and we will see that you get the information you want. That's all there is to it. Easy, simple, and it costs absolutely nothing.

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Therefore—use fresh Mazda bulbs of the right size in all your reading lamps and in fixtures when efficient work must be done. That is the simple, practical way to protect the family's eyes. To assure this protection, it is wise to inspect all light bulbs periodically, cleaning them or replacing those that have become blackened from use. (Blackened bulbs rob you of light.) Use these blackened bulbs only where there is no close visual work.

Convert electricity into the best possible lighting. Conserve your eyesight—not your lighting.

ASK YOUR ELECTRIC COMPANY

or your electrical equipment dealer if you need information on equipment. Or, if you prefer, address your inquiries to ELECTRICITY ON THE FARM, 24 West 40th Street, New York, or 6 No. Michigan Avenue, Chicago.

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